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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/672,769 09/29/00 TAKAHASHI

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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK NY 10112

EXAMINER

SHOSHO, C

ART UNIT

PAPER NUMBER

1714

DATE MAILED:

09/13/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/672,769

Applicant(s)
Takahashi et al.

Examiner
Callie Shosho

Art Unit
1714



— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirements.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 & 6 20) ☐ Other: _____

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DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 1020, 1024a, and 1024b in Figure 1 and I in each of Figures 8-15. Correction is required.
2. The drawings are objected to because reference signs Ia, Ib, Ic, Id, and Ie in the figures are referred to as 1a, 1b, 1c, 1d, and 1e on page 38, line 21 and page 39, line 5, page 39, line 27, page 40, line 5, page 40, line 25, and page 40, line 26, respectively. That is, the figures use the letter "I" while the specification uses the number "1" with respect to these reference signs. Correction is required. It is suggested that 1a, 1b, 1c, 1d, and 1e in the specification be changed to Ia, Ib, Ic, Id, and Ie, respectively.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claims 1, 8, 9, 10, and 11 each refer to a "color-containing resin". The scope of each of the claim is confusing because it is not clear what is meant by "color-containing resin". Is the colorant encapsulated by the resin, is the resin produced by polymerizing in the presence of the colorant, is the colorant simply dispersed by the resin, etc? Clarification is requested.

(b) Claims 1, 8, 9, 10, and 11 each recite improper Markush groups.

Claim 1, lines 4-8, for instance, recites "said composition further comprising at least one of a compound represented by the following general formula (I) and a compound represented by the following general formula (II)". It is suggested that the phrase is either changed to "said composition further comprising at least one of a compound represented by the following general formula (I) or a compound represented by the following general formula (II)" or "said composition further comprising a compound selected from the group consisting of a compound represented by the following general formula (I), a compound represented by the following general formula (II), and mixtures thereof".

Similar changes are suggested in each of claims 8-11.

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(c) Claim 6 recites an improper Markush group. It is suggested that in line 3 after “from” and before “group”, “a” is changed to “the”.

(d) Claim 3, which depends on claim 2, discloses that the pigment fine particle is a self-dispersible carbon black which has at least one hydrophilic group, while claim 2 recites that the pigment fine particle has a cationic hydrophilic group. The scope of claim 3 is confusing given that in claim 3, the pigment has any type of hydrophilic group, i.e. anionic, cationic, etc. while in claim 2, the pigment must have a cationic hydrophilic group. Given that claim 3 depends on claim 2, it appears that the carbon black must possess a cationic hydrophilic group. Clarification is requested.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 and 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sacripante et al. (U.S. 6,251,987) in view of Suzuki et al. (U.S. 6,153,001).

Sacripante et al. disclose an aqueous ink jet ink comprising color-containing resin particles, pigment fine particle, 3-25% polyhydric alcohol such as propylene glycol and glycerin, and urea. There is also disclosed an ink jet ink printing method wherein the above inks are placed in an ink jet printer and then jetted onto a substrate (col.2, line 66-col.3, line 1, col.7, lines 58-59, col.7, line 66-col.8, line 4, col.8, lines 20, 26-30, 36, and 63-66, col.10, lines 26-37, and col.14,

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lines 35-36). Although there is no explicit disclosure of ink cartridge or ink container, it is clear that the ink jet printer would intrinsically possess these components in order to store the ink.

The difference between Sacripante et al. and the present claimed invention is the requirement in the claims of specific type of urea.

On the one hand, the broad disclosure by Sacripante et al. of urea clearly encompasses all types of urea including ethylene urea and propylene urea as presently claimed. Therefore, absent evidence to the contrary, it therefore would have been obvious to one of ordinary skill in the art to choose urea, including that presently claimed, and thereby arrive at the claimed invention.

On the other hand, Suzuki et al., which is drawn to ink inks, disclose the use of 0.5-15% ethylene urea in order to prevent nozzle clogging. Further, Suzuki et al. disclose the equivalence and interchangeability of urea, as disclosed by Sacripante et al., with ethylene urea.

In light of the motivation for using ethylene urea disclosed by Suzuki et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to ethylene urea in the ink jet ink of Sacripante et al. in order to produce an ink which will not clog the printer nozzles, and thereby arrive at the claimed invention.

8. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sacripante et al. in view of Suzuki et al. as applied to claims 1 and 5-11 above, and further in view of either Tsang et al. (U.S. 5,886,065) or Johnson et al. (U.S. 5,922,118).

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The difference between Sacripante et al. in view of Suzuki et al. and the present claimed invention is the requirement in the claims of specific type of pigment.

Tsang et al., which is drawn to ink jet inks, disclose the use of carbon black treated with cationic groups in order to produce an ink which is both waterfast and non-flocculating (col.2, lines 45-49 and col.5, lines 16-26).

Alternatively, Johnson et al. disclose the use of self-dispersing pigment suitable for use in ink jet inks wherein the pigment comprises carbon black having at least one attached cationic group and wherein the motivation for using such pigment is that it produces an ink with improved waterfastness. Further, Johnson et al. disclose that the ink jet ink utilizing such treated pigment have improved optical density as compared to inks which comprise untreated pigments (col.4, lines 18-24, col.7, lines 41-57, and col.12, lines 1-14 and 52).

In light of the motivation for using specific type of pigment disclosed by either Tsang et al. or Johnson et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink jet ink of Sacripante et al. in order to produce an ink which is both waterfast and non-flocculating or, alternatively, has improved waterfastness and optical density, and thereby arrive at the claimed invention.

9. Claims 1 and 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsumi et al. (U.S. 6,031,019) in view of Suzuki et al. (U.S. 6,153,001).

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Tsutsumi et al. disclose an aqueous ink jet ink comprising 0.1-15% polyhydric alcohol, 0.5-5% urea, and pigment fine particle encapsulated into fine polymer particles. It is further disclosed that not all the colorant present in the ink is encapsulated into the polymer. Thus, it is clear that the ink of Tsutsumi et al. contains pigment and color-containing polymer as presently claimed. It is further disclosed that the fine polymer particles include those obtained from cationic monomers. There is also disclosed an ink jet ink printing method wherein the above inks are placed in an ink jet printer comprising a ink cartridge and then jetted onto a substrate (col.3, lines 49-50, col. 3, line 64-col.4, line 12, col.4, lines 20-22, col.6, lines 34-36 and 41-45, col.11, lines 38-44 and 61-67, col.13, line 31, col.14, lines 41-47, and col.15, lines 40-42). Although there is no explicit disclosure of ink container, it is clear that the ink jet printer would intrinsically possess this component to in order to store the ink.

The difference between Tsutsumi et al. and the present claimed invention is the requirement in the claims of specific type of urea.

On the one hand, the broad disclosure by Tsutsumi et al. of urea clearly encompasses all types of urea including ethylene urea and propylene urea as presently claimed. Therefore, absent evidence to the contrary, it therefore would have been obvious to one of ordinary skill in the art to choose urea, including that presently claimed, and thereby arrive at the claimed invention.

On the other hand, Suzuki et al., which is drawn to ink inks, disclose the use of 0.5-15% ethylene urea in order to prevent nozzle clogging. Further, Suzuki et al. disclose the equivalence and interchangeability of urea, as disclosed by Tsutsumi et al., with ethylene urea.

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In light of the motivation for using ethylene urea disclosed by Suzuki et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to ethylene urea in the ink jet ink of Tsutsumi et al. in order to produce an ink which will not clog the printer nozzles, and thereby arrive at the claimed invention.

10. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsumi et al. in view of Suzuki et al. as applied to claims 1 and 4-11 above, and further in view of either Tsang et al. (U.S. 5,886,065) or Johnson et al. (U.S. 5,922,118).

The difference between Tsutsumi et al. in view of Suzuki et al. and the present claimed invention is the requirement in the claims of specific type of pigment.

Tsang et al., which is drawn to ink jet inks, disclose the use of carbon black treated with cationic groups in order to produce an ink which is both waterfast and non-flocculating (col.2, lines 45-49 and col.5, lines 16-26).

Alternatively, Johnson et al. disclose the use of self-dispersing pigment suitable for use in ink jet inks wherein the pigment comprises carbon black having at least one attached cationic group and wherein the motivation for using such pigment is that it produces an ink with improved waterfastness. Further, Johnson et al. disclose that the ink jet ink utilizing such treated pigment have improved optical density as compared to inks which comprise untreated pigments (col.4, lines 18-24, col.7, lines 41-57, and col.12, lines 1-14 and 52).

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In light of the motivation for using specific type of pigment disclosed by either Tsang et al. or Johnson et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink jet ink of Tsutsumi et al. in order to produce an ink which is both waterfast and non-flocculating or, alternatively, has improved waterfastness and optical density, and thereby arrive at the claimed invention.

11. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shintani et al. (U.S. 4,623,689) in view of either Tsang et al. (U.S. 5,886,065) or Johnson et al. (U.S. 5,922,118).

Shintani et al. disclose an ink jet ink comprising color-containing resin fine particles, 5-50% ethylene urea which is identical to presently claimed compound (I), and polyhydric alcohol such as propylene glycol and glycerin. Further, it is disclosed that the resin includes those obtained from cationic monomers (col.2, lines 38 and 44, col.3, lines 15-17, col.8, lines 51-61, col.9, lines 24-28, and col.10, line 37).

The difference between Shintani et al. and the present claimed invention is the requirement in the claims of (a) self-dispersing pigment and (b) amount of polyhydric alcohol.

With respect to difference (a), Tsang et al., which is drawn to ink jet inks, disclose the use of carbon black treated with cationic groups in order to produce an ink which is both waterfast and non-flocculating (col.2, lines 45-49 and col.5, lines 16-26).

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Alternatively, Johnson et al. disclose the use of self-dispersing pigment suitable for use in ink jet inks wherein the pigment comprises carbon black having at least one attached cationic group and wherein the motivation for using such pigment is that it produces an ink with improved waterfastness (col.4, lines 18-24, col.7, lines 41-57, and col.12, line 52).

In light of the motivation for using specific type of pigment disclosed by either Tsang et al. or Johnson et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink jet ink of Shintani et al. in order to produce an ink which is both waterfast and non-flocculating or, alternatively, has improved waterfastness and optical density, and thereby arrive at the claimed invention.

With respect to difference (b), although there is no explicit disclosure of the amount of polyhydric alcohol used, given that Shintani et al. disclose that the polyhydric alcohol is used as a drying property adjusting agent, it would have been within the skill level of, as well as obvious to, one of ordinary skill in the art to choose amounts of polyhydric alcohol including those presently claimed in order to control the drying rate of the ink such that the ink dries quickly when applied to paper but at the same time does not clog the printer nozzles, and thereby arrive at the claimed invention.

12. Claims 1 and 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (U.S. 5,693,126) in view of either Tsutsumi et al. (U.S. 6,031,019) or Shintani et al. (U.S. 4,623,689).

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Ito discloses an aqueous ink jet ink comprising self-dispersing pigment, 1-50% ethylene urea which is identical to presently claimed compound (I), 0.5-20% propylene urea which is identical to presently claimed compound (II), and 1-25% polyhydric alcohol such as glycerin. There is also disclosed an ink jet ink printing method wherein the above inks are placed in an ink jet printer and then jetted onto a substrate (col.2, lines 12-17, col.6, lines 58-60, col.7, lines 43-55, col.8, lines 51-59, and col.14, lines 16-50). Although there is no explicit disclosure of ink cartridge or ink container, it is clear that the ink jet printer would intrinsically possess these components in order to store the ink.

The difference between Ito and the present claimed invention is the requirement in the claims of color-containing resin.

Tsutsumi et al., which is drawn to ink jet inks, disclose the use of pigment fine particle encapsulated into fine polymer particles wherein the polymer is obtained from cationic monomer (col.3, line 65-col.4, line 12, col.4, lines 20-22, and col.6, lines 34-36 and 41-45) in order to produce an ink with improved waterfastness and anti-feathering properties (col.2, lines 41-43).

Alternatively, Shintani et al., which is drawn to ink jet inks, disclose the use of color-containing resin fine particles wherein the resin is obtained from cationic monomers in order to produce an ink with excellent stability and lightfastness (col.2, lines 10-26 and col.3, lines 15-17).

In light of the motivation for using color-containing resin disclosed by either Tsutsumi et al. or Shintani et al. as described above, it therefore would have been obvious to one of ordinary

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skill in the art to use such color-containing resin in the ink jet ink of Ito in order to produce an ink with improved waterfastness and anti-feathering properties, or alternatively, excellent stability and lightfastness, and thereby arrive at the claimed invention.

13. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of either Tsutsumi et al. or Shintani et al. as applied to claims 1 and 4-11 above, and further in view of either Tsang et al. (U.S. 5,886,065) or Johnson et al. (U.S. 5,922,118).

The difference between Ito in view of either Tsutsumi et al. or Shintani et al. and the present claimed invention is the requirement in the claims of specific type of pigment.

Tsang et al., which is drawn to ink jet inks, disclose the use of carbon black treated with cationic groups in order to produce an ink which is both waterfast and non-flocculating (col.2, lines 45-49 and col.5, lines 16-26).

Alternatively, Johnson et al. disclose the use of self-dispersing pigment suitable for use in ink jet inks wherein the pigment comprises carbon black having at least one attached cationic group and wherein the motivation for using such pigment is that it produces an ink with improved waterfastness. Further, Johnson et al. disclose that the ink jet ink utilizing such treated pigment have improved optical density as compared to inks which comprise untreated pigments (col.4, lines 18-24, col.7, lines 41-57, and col.12, lines 1-14 and 52).

In light of the motivation for using specific type of pigment disclosed by either Tsang et al. or Johnson et al. as described above, it therefore would have been obvious to one of ordinary

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skill in the art to use such pigment in the ink jet ink of Ito in order to produce an ink which is both waterfast and non-flocculating or, alternatively, has improved waterfastness and optical density, and thereby arrive at the claimed invention.

14. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (U.S. 6,153,011) in view of either Tsutsumi et al. (U.S. 6,031,019) or Shintani et al. (U.S. 4,623,689).

Suzuki et al. disclose an aqueous ink jet ink comprising self-dispersing pigment fine particle which has cationic hydrophilic groups, 0.5-15% ethylene urea which is identical to presently claimed compound (I), and 1-60% polyhydric alcohol. There is also disclosed an ink jet ink printing method wherein the above inks are placed in an ink jet printer and then jetted onto a substrate (col.7, lines 5-12 and 35-38, col.9, lines 36-39, col.12, lines 20, 41-46, and 67, col.13, lines 1-7, and col.15, lines 34-57). Although there is no explicit disclosure of ink cartridge or ink container, it is clear that the ink jet printer would intrinsically possess these components to in order to store the ink.

The difference between Suzuki et al. and the present claimed invention is the requirement in the claims of color-containing resin.

Tsutsumi et al., which is drawn to ink jet inks, disclose the use of pigment fine particle encapsulated into fine polymer particles wherein the polymer is obtained from cationic monomer

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(col.3, line 65-col.4, line 12, col.4, lines 20-22, and col.6, lines 34-36 and 41-45) in order to produce an ink with improved waterfastness and anti-feathering properties (col.2, lines 41-43).

Alternatively, Shintani et al., which is drawn to ink jet inks, disclose the use of color-containing resin fine particles wherein the resin is obtained from cationic monomers in order to produce an ink with excellent stability and lightfastness (col.2, lines 10-26 and col.3, lines 15-17).

In light of the motivation for using color-containing resin disclosed by either Tsutsumi et al. or Shintani et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such color-containing resin in the ink jet ink of Suzuki et al. in order to produce an ink with improved waterfastness and anti-feathering properties, or alternatively, excellent stability and lightfastness, and thereby arrive at the claimed invention.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamashita et al. (U.S. 5,969,005) disclose an ink composition comprising ethylene urea, polyhydric alcohol, and mixture of pigment and dyes, however, there is no disclosure of color-containing resin as presently claimed.

Yui et al. (U.S. 5,948, 155) disclose an ink comprising self-dispersing pigment or pigment/cationic dispersant, urea, and polyhydric alcohol, however, there is no disclosure of color-containing resin as presently claimed.

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Lin (U.S. 5,851,274) disclose an ink comprising polyhydric alcohol and self-dispersing pigment or pigment/cationic dispersant, however, there is no disclosure of urea or color-containing resin as presently claimed.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie Shosho whose telephone number is (703) 305-0208. The examiner can normally be reached on Mondays-Thursdays from 7:00 am to 4:30 pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Callie Shosho

9/7/01

Vasu Jagannathan
VASU JAGANNATHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700